

CORRES CONTROL
OUTGOING LTR NO

DOE ORDER# 4700.1

14 RF 08148

EG&G ROCKY FLATS

EG&G ROCKY FLATS INC

ROCKY FLATS PLANT P O BOX 464 GOLDEN COLORADO 80402-0464 (303) 966 7000

DIST	TR	ENC
AMARAL, M E		
BURLINGAME A H		
BUSBY W S		
BRANCH D B		
CARNIVAL G J		
DAVIS J G		
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HILBIG, J G		
HUTCHINS, N M		
JACKSON, D T		
KELL, R E		
KUESTER, A W		
MARX, G E		
MCDONALD, M M		
McKENNA, F G		
MONTROSE, J K		
MORGAN, R V		
POTTER, G L		
PIZZUTO, V M		
RISING, T L		
SANDLIN, N B		
SCHWARTZ, J K		
SETLOCK, G H		
STEWART, D L		
STIGER, S G		
TOBIN, P M		
VOORHEIS, G M		
WILSON, J M		

C. A. BICHER ✓
M. B. WOOD ✓

CORRES CONTROL X X
ADMN RECORD/080 ✓
TRAFFIC
PATS/T130G

CLASSIFICATION

UCNI
UNCLASSIFIED ✓
CONFIDENTIAL
SECRET

AUTHORIZED CLASSIFIER
SIGNATURE
N/A

DATE

IN REPLY TO RFP CC NO

ACTION ITEM STATUS

✓ PARTIAL/OPEN
□ CLOSED
LTR APPROVALS

ORIG & TYPIST INITIALS

CAB / CB

August 1 1994

94 RF 08148

Jessie M Roberson
Acting Assistant Manager for
Environmental Restoration
DOE RFFO

Attn Jen Pepe

OPERABLE UNIT (OU) 5 WOMAN CREEK PRIORITY DRAINAGE TECHNICAL MEMORANDUM
(TM) 15 ADDENDUM TO THE FIELD SAMPLING PLAN ECM 035 94

Action Obtain Environmental Protection Agency s (EPA s) approval of TM 15 for
commencement of field work

This letter transmits the responses to EPA comments regarding TM 15 Addendum to the
Field Sampling Plan

Incorporation of EPA comments will not require major revisions Please provide
approval to finalize the technical memorandum

EPA s approval of the TM 15 Field Sampling Plan is required prior to commencing field
work Currently field crews are scheduled to mobilize to the field on August 19 1994
Please obtain approval from EPA by August 22 1994

E. C. Mast

E C Mast
Operable Units 5 6 & 7 Closures
Environmental Restoration Program Division

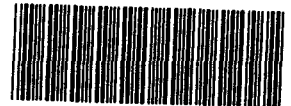
CAB cb

Orig and 1 cc J M Roberson

Attachment
As Stated

cc
P S Singh DOE RFFO

ADMIN RECORD



000036149



REVIEW AND COMMENT RECORD					1 Response Date <u>July 25, 1994</u>
2 Document Title <u>DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan</u>					
3 Reviewing Agency <u>EPA</u>					
4 Review Date <u>July 15 1994</u>					
Page <u>1</u> of <u>6</u>					
Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE
	Page	Item			
GENERAL COMMENTS					
1			<p>In general the following comments pertain to a need for more strict application of the data quality objective development process. In order to have a defensible program on which to base remedy decisions (including no action) a clear understanding is needed of the relevant questions to be answered and the number and type of samples which will get those answers with an acceptable level of confidence. The program described in Technical Memorandum 15 (TM 15) appears to be generally sound but our comments indicate areas where additional information is needed for clear data quality objectives</p>	<p>Data quality objectives have been clarified as presented in the responses presented for the SPECIFIC COMMENTS (below)</p>	

REVIEW AND COMMENT RECORD

1 Response Date July 25, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

3 Reviewing Agency EPA

4 Review Date July 15 1994
Page 2 **of** 6

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE
	Page	Item			
2			<p>EPA's other general concern pertains to groundwater characterization. The presumptive remedy guidance for municipal landfills (OSWER Directive 9355 0-49FS) recommends a streamlined evaluation of risk. This approach relies on groundwater data downgradient of the landfill which demonstrate that contaminants clearly exceed established standards as Individual Hazardous Substance Site (IHSS) 115 is sparse. Technical Memorandum 15 (TM 15) specifies 5 additional well points but only a one time groundwater sample for each. EPA is concerned that if these well points are installed at a dry period of the year the one time sample will not be representative and may not give DOE enough information to make a decision about whether a remedial response is needed at IHSS 15. We recommend developing these wells and establishing a monitoring program. DOE's only other alternative is to perform a more detailed quantitative risk assessment to understand the risk associated with other exposure pathways.</p>	<p>As stated in TM15 water levels will be measured monthly for at least one year at all existing measuring points as well as the proposed locations. Groundwater samples will be obtained when sufficient water is present. Experience with wells and well points in Woman Creek drainage indicates that it is likely that there may only be sufficient water during the spring. Characterization of ground water also includes its presence many of the well points and mini wells are to demonstrate the absence of ground water.</p>	

REVIEW AND COMMENT RECORD

1 Response Date July 25, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

3 Reviewing Agency EPA

4 Review Date July 15 1994
Page 3 of 6

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INT/DATE
	Page	Item			
3			EPA disagrees with six foot compositing of soil borings The investigations of the landfill and ash pits to date have shown that apparent contamination is in discrete subsurface intervals that can vary but is sometimes found only in 1 2 foot intervals (See table 2 5 3 2 1 indicating presence of ash in soil borings) The practice of compositing six feet of material may result in dilution of contamination and may be the reason for the low levels detected thus far We recommend sampling in two foot intervals	Text added to indicate that two foot composites will be collected instead of the proposed six foot composites	
SPECIFIC COMMENTS					
1	2 13		There is no justification for the statement these diversions from background concentrations are not believed to be indicative of contamination Delete this statement.	Statement deleted	
2	2 19		A one time sample of the storm sewer outfall during dry weather is not sufficient for understanding what, if any contamination is carried by the storm sewer Additional samples during various flow periods are needed to understand the nature and extent of contamination	Text added to indicate that this location will be included in the current surface water sampling program Samples will be collected quarterly such that two samples will be during high flow events and two will be during low flow	

REVIEW AND COMMENT RECORD

1 Response Date July 25, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

3 Reviewing Agency EPA

4 Review Date July 15 1994
Page 4 **of** 6

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE
	Page	Item			
3	3	9	Subsurface soil samples at the well point locations may be important to understand contaminant migration EPA suggests that these samples be taken and analyzed only for the identified contaminants of concern in subsurface soil if cost was a factor in the decision not to sample these soils If DOE has adequate justification for not collecting this information it should to be presented in TM 15	With the number of boreholes in the vicinity of the proposed locations the stated purpose of the well points of characterizing ground water quality and the fact that soil samples cannot be obtained while installing a well point, obtaining and analyzing soil samples cannot be technically justified	
4	3-6		Provide a rationale for the choice of the number of boreholes (13) and their locations	Text added to indicate that the geotechnical boreholes will be located with a similar spacing that was used for both the CPT and Well Point investigations (ie approximately 100 ft. spacing) The number was then based on the overall visible width of the existing failure and accessibility	
5	3-6		Similar to the general comment above it is not clear why DOE plans to sample composite drum samples. The volume of material composited in the drum makes the analysis meaningless because any contamination will be diluted	The purpose of these boreholes is for geotechnical analysis The samples are only to characterize the soil for purpose of disposal This methodology is approved for characterizing the contents of a drum	
6	3	9	Provide rationale for the number and locations of groundwater well points	The primary purpose of these well points is to further characterize the presence of ground water (or more precisely the absence of ground water) The five well point locations are placed in 1) bedrock lows that were identified (but water was not detected) during the CPT investigation and 2) between existing well points.	

REVIEW AND COMMENT RECORD					1 Response Date July 25, 1994	
2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan						
3 Reviewing Agency EPA					4 Review Date July 15 1994	
					Page 5 of 6	
Reviewer Item	Document	Page	Item	Comment(s)	Resolution	Resolution accepted INIT/DATE
7		3	12	<p>Provide references for the SOPs to be used in quantifying the extent of vegetation presence of soil crustal material characterization of the crust, and soil sieving required for the rapid assessment field investigation. Also provide more details on how the threshold friction velocities from operable units 3 and 5 will be compared. What is considered to be a significant difference? How will the comparisons be made?</p>	<p>Procedures for quantifying the extent of vegetation, presence of soil crustal material characterization of the crust, and soil sieving re described in Cowherd et al. (1983). These procedures will be conducted in conformance with the applicable requirements of the EG&G Rocky Flat Inc. Environmental Management Division Operating Procedures Manual (1994).</p> <p>The OU3 Wind Tunnel Study (EG&G Rocky Flats Inc. 1994) measured the three hold friction velocities at four undisturbed terrestrial sites. The range of the individual results (>160 cm/s, >170 cm/s and >180 cm/s and >280 cm/s) was narrow. The soil and vegetation conditions of these sites were not well characterized in the text of the report. The first activity will be a field examination of these four undisturbed terrestrial sites within OU3 in order to record in descriptive detail the soil and vegetation conditions. One soil sieve measurement and one nonerodible element correction factor L_n will be made at each site according to the rapid assessment method.</p> <p>The areas of interest in OU5 are those where radionuclides in the surface soils are above the background upper tolerance limits IHSS 115 (the old landfill) IHSS 133 (ash pits) and three areas exhibiting historical surface disturbances on the south side of the Woman Creek Drainage. The soil and vegetation conditions of these areas will be examined for comparison with the conditions of the four OU3 undisturbed terrestrial sites. The purpose of this comparison is to evaluate whether the soil and vegetation conditions of OU3 are similar or different to those at OU5. To this extent, in the field the comparison will be qualitative.</p>	

REVIEW AND COMMENT RECORD 1 Response Date July 25, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

3 Reviewing Agency EPA

4 Review Date July 15 1994
Page 6 of 6

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATB
	Page	Item			
7	3 12	Continued	Continued	<p>Each area of interest in OUS will be examined also for homogeneity of soil and vegetation conditions. If the area is homogeneous 5 soil sieve samples will be measured within the area. That is total of 25 sieve samples will be measured for the 5 areas of interest. If an area is not homogeneous 5 samples will be measured within each sub-area of relative soil and vegetation uniformity. Along with each soil sieving procedure a measurement of a correction factor for nonrodible surface elements L_n will be taken.</p> <p>The threshold friction velocities of the soil condition at each area of interest will be calculated from the soil sieve measurements and nonrodible-element correction factor estimates. The average threshold friction velocity of each area of interest will be compared with the values obtained at the four comparable terrestrial sites in OUS. If the OUS rapid assessment results compare within the same order of magnitude of the OUS wind tunnel study results then the difference will not be considered significant. The investigation will be regarded complete and a wind tunnel study at OUS will not be recommended. If the threshold friction velocities determined by OUS rapid assessment method are not in the 10E2 order of magnitude, then the difference will be considered significant and a wind tunnel study at OUS will be recommended.</p> <p>Within the framework of the human health risk assessment of the Woman Creek Drainage the purpose of determining the threshold friction velocity of the soils of OUS is to obtain a source input parameter the threshold wind speed, for the air dispersion model. If threshold wind speed of the site is higher than the episodic wind speed then the accuracy of the threshold friction velocity (hence, the threshold wind speed) is not critical. The results of the OUS Wind Tunnel Study and preliminary calculations from soil particle size distributions for IHSS 115 in OUS indicate that this might be a likely situation at OUS and OUS.</p>	

Reference list for Comment Resolution forms for DRAFT FINAL Technical Memorandum No 15, Amended Field Sampling Plan

REVIEW AND COMMENT RECORD						1 Response Date <u>July 29, 1994</u>	
2 Document Title <u>DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan</u>							
Reviewing Agency <u>EPA (PRC comments)</u>						Review Date <u>June 10 1994</u> Page <u>1</u> of <u>8</u>	
Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE		
	Page	Item					
GENERAL COMMENTS							
1			<p>The previous sampling was performed largely at a time of year when groundwater levels were at their lowest. Consequently groundwater was often not found in borings or insufficient levels for well placement were found. It is probable that the results of this program underestimate the groundwater levels during other portions of the year. Based on these previous data, the proposed program may continue to produce data that are biased toward underestimation of possible contamination. It is recommended that a program be designed to install wells in likely locations and monitor them quarterly for a full year.</p>	<p>As stated in TM15 water levels will be measured monthly for at least one year at all existing measuring points as well as the proposed locations. Groundwater samples will be obtained when sufficient water is present. Experience with wells and well points in Woman Creek drainage indicates that it is likely that there may only be sufficient water during the spring. Characterization of ground water also includes its presence many of the well points and mini wells are to demonstrate the absence of ground water.</p>			
2			<p>Data from previous sampling of surface water stations SW-80 and SW 104 and sediment stations SED-18 and SED-19 should be presented in the draft RI. These stations showed indications of contamination in the past and are a geographic part of the Woman Creek drainage. Past work plans and OU management did not deal with these sites under OU5. These areas should be examined in more detail before they are eliminated from concern.</p>	<p>Data from these sampling sites will be presented in the OU5 draft RFI/RI.</p>			

REVIEW AND COMMENT RECORD					1 Response Date	<u>July 29, 1994</u>	
2 Document Title							DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan
Reviewing Agency							EPA (PRC comments)
Review Date							June 10 1994
Page							8 of 8
Reviewer Item	Page	Document Item	Comment(s)	Resolution	Resolution accepted INIT/DATE		
10		2.4.6 and Tables 2.4.6.3.1 and 2.4.6.3.2	<p>This section summarizes ambient air quality data. The raw data from which the summaries are derived is neither presented in Technical Memorandum 1.5 nor properly referenced. At a minimum a reference should be provided that identifies where the data can be reviewed</p>	<p>The ambient air monitoring data that are summarized in Table 2.4.6.3.1 will be presented in the final version of TM15 as Appendix B.7.1. The ambient air data summarized in Table 2.4.6.3.2 will be presented in the final version of TM15 as Appendix B.7.2. The reference source for all ambient air quality data is the Rocky Flats Environmental Data System (RFEDS)</p>			

REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

Reviewing Agency EPA (PRC comments)

Review Date June 10 1994
Page 7 **of** 8

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INT/DATE
	Page	Item			
8	3 22	3 2 2 2	The last paragraph states that visual survey will be performed along Woman Creek to look for bedrock outcrops While this survey may be useful there is once again no inclusion of the existing geologic mapping data, which are considerable Although a visual survey may be warranted it could be more effective if the existing data is reviewed and incorporated into the survey before performing the survey	The Surface Geology Map has been reviewed and due to its scale and complexity the survey was proposed	

SPECIFIC COMMENTS VOLUME 2

9		2 4 6	<p>This section considers only airborne contamination data from</p> <p>Ambient air monitoring program (RAAMP) samplers S 13 S 14 S 23 S 32 and S 38</p> <p>OU5 samplers S100 S101 and S102</p> <p>In general air quality monitoring is a site wide issue and should be treated as one</p> <p>Segregating the monitoring data by OUs rather than on a site wide basis can lead to erroneous conclusions Since airborne contaminations can travel great distances the review of air monitoring data should not be restricted to samplers in the immediate vicinity of the potential emission source such as OU5 Data from other samplers surrounding OU5 should be included in this review</p>	<p>All appropriate data including those from other samplers surrounding OU5 will be reviewed for the OU5 Phase I RFI/RI Report. For the limited purpose of preparing this Technical Memorandum No 15 which is a proposed amended field sampling plan for OU5 the data from only selected samplers was reviewed</p>	
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REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

Reviewing Agency EPA (PRC comments)

Review Date June 10 1994

Page 6 of 8

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE
	Page	Item			
6	3 20	3 2 2 1	The text states that field parameters of specific conductance pH temperature and dissolved oxygen will be measured in the container used for uranium analysis if the supply of groundwater is limited This would generally be considered a poor practice due to the possibility of cross-contaminating the real sample for uranium analysis by improperly decontaminated instrument probes It is suggested that this protocol should not be employed	Text removed and SOPs will be followed	
7	3 22	3 2 2 2	The third full paragraph states that one time groundwater samples will be obtained if a sufficient quantity of water is present. Once again it must be noted that this sampling program will be undertaken when groundwater levels are at their lowest. Therefore many areas with a small saturated interval or dry conditions will not be sampled even though these areas may be saturated at other times of the year It is recommended that a 1 year long program of quarterly sampling be conducted to avoid skewing the results toward a possible false negative conclusion	As stated in TM15 water levels will be measured monthly for at least one year at all existing measuring points as well as the proposed locations Groundwater samples will be obtained when sufficient water is present. Experience with wells and well points in Woman Creek drainage indicates that it is likely that there may only be sufficient water during the spring Characterization of ground water also includes its presence many of the well points and mini wells are to demonstrate the absence of ground water	

REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

Reviewing Agency EPA (PRC comments)

Review Date June 10 1994
Page 5 **of** 8

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE
	Page	Item			
4		3 1 2 3	<p>The probable schedule for this field work is late summer to early autumn of 1994</p> <p>Hydrographs form RFP show this to be the driest time of the year with groundwater levels dropping as much as 10 feet in local areas. The previous field work for monitoring well placement was conducted in July and low water table conditions were encountered. Consequently modifications were needed to relocate the proposed monitoring wells. Because of this experience the text should indicate how final well placements will be decided.</p> <p>Water level data should be submitted along with cone penetrometer testing (CPT) or other data that support the selection of well locations and the decision process for completing a well or abandoning the boreholes as dry</p>	<p>Purpose of these well points and mini wells is to characterize the ground water but the intent is to demonstrate its absence. Proposed locations were selected based on either bedrock topography distance between current locations etc. Their locations are independent upon presence of water. All locations will be completed even if water is not encountered unless drilling conditions prevent installation</p>	
5		3 1 2 3	<p>The last paragraph indicates that an aquifer test will retest well 59593 which failed to produce useable slug test results during 1993. The text should explain what type of test will be used during the summer of 1994 especially considering the possibility of limited yield during the dry portion of the year</p>	<p>The initial test was a slug test. Text added to indicate that the proposed test will be a single well pumping test. The test will only be conducted if the water level is higher than the previous test. This will allow the unit to be stressed more than the previous test.</p>	

REVIEW AND COMMENT RECORD					1 Response Date <u>July 29, 1994</u>	
2 Document Title <u>DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan</u>						
Reviewing Agency <u>EPA (PRC comments)</u>					Review Date <u>June 10 1994</u> Page <u>4</u> of <u>8</u>	
Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INT/DATE	
	Page	Item				
2	3 14	3 1 2	The text states If inhalation of volatile chemical species emitted from areas of IHSS individual hazardous substance site 115 by workers or future residents outdoors is eventually decided to be an exposure pathway of concern then additional field work will be required The text does not but should identify the conditions necessary for determining the exposure pathway of concern	As discussed in Section 4 0 of <i>Technical Memorandum No 12 Human Health Risk Assessment Exposure Scenarios Rocky Flats Plant Woman Creek Priority Drainage (Operable Unit No 5)</i> (EG&G Rocky Flats Plant, Inc 1993) a complete exposure ie an exposure pathway of concern includes five necessary elements These elements are a source of chemicals a mechanism of chemical release an environmental transport medium an exposure point, and a human intake route Inhalation of chemicals that have volatilized from site soils or groundwater to outdoor air now are considered negligible pathways However if risk assessment specialists in the future reassess this determination according to the procedures presented in Technical Memorandum No 12 then additional field work will be required to measure emission rates of these volatile gases from IHSS 115		
3		3 1 2 2	This section discusses the need for geotechnical evaluation of IHSS 115 The text mentions pre-existing slump investigations in the proposed characterization program There are abundant data in reports for OU2 (sic) (the 881 Hillside) in the french drain geotechnical report (EG&G 1990) and in the geologic characterization reports These data should be consulted and compiled and evaluated before the geotechnical program (EG&G 1992) is conducted This evaluation will allow modification of the program should these data indicate a modification would be desirable	Text added to indicate geotechnical reports for the 881 Hillside will be reviewed prior to field activities		

REVIEW AND COMMENT RECORD					1 Response Date <u>July 29, 1994</u>	
2 Document Title <u>DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan</u>						
Reviewing Agency <u>EPA (PRC comments)</u>					Review Date <u>June 10 1994</u> Page <u>3</u> of <u>8</u>	
Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INIT/DATE	
	Page	Item				
SPECIFIC COMMENTS VOLUME 1						
1		216	<p>This section mentions health and safety monitoring data. The data are neither presented in Technical Memorandum 15 nor properly referenced. At a minimum a reference should be provided that identifies where these data can be reviewed.</p>	<p>As discussed in Volume 2 Section 2.4.6 health and safety air monitoring for volatile organic gases and radiation was conducted frequently and routinely by field personnel during all ground-disturbance activities at OUS. Personnel maintained notes of the health and safety air monitoring in 21 field activity log books compiled throughout the course of the investigation (Advanced Sciences Inc 1992 1993). Copies of these log books are on file with EG&G Records Department.</p> <p>During the field investigation of IHSS 133 additional personal air sampling for asbestos-containing materials was also conducted during those drilling operations when suspect material was encountered. This additional health and safety monitoring activity is discussed in Volume 2 Section 2.5.5. The results of this monitoring are not noted in the log books referenced above and will be presented in the final version of TM15 as Appendix B.7.3</p>		

REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan

Reviewing Agency EPA (PRC comments)

Review Date June 10 1994

Page 2 of 8

Reviewer Item	Document		Comment(s)	Resolution	Resolution accepted INTI/DATE
	Page	Item			
3			<p>Judgmental better to just point out the concrete effects of this deficiency. The lack of wells and the minimal penetration of the bedrock in the boring program create a glaring data gap. The Geologic Characterization Final Report (EG&G 1992) states that several of the Arapahoe Formation sandstone units certainly underlie OU5. PRC's independent analysis also indicates this is probable. However, because there are no data on the existence and distribution of these sandstones and no data on possible contamination in them, the characterization of OU5 should not be considered complete. An additional concern is that the complete lack of data on groundwater losses from the alluvium to the underlying bedrock makes any hydrogeologic modeling effort unreliable. Therefore, several bedrock wells should be installed at OU5.</p>	<p>Boreholes advanced during the field activities for OU5 were advanced as specified in the TMs. Specifically in TM 7, will be drilled 6 feet into weathered bedrock. If the bedrock encountered during drilling is a sandstone, the borings will be advanced 6 feet into the next claystone horizon. Therefore, where permeable units were encountered in the bedrock, they were characterized and bedrock wells are not warranted at this time.</p>	

REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan Volume 2

Reviewing Agency EG&G ER/EQS

Review Date June 8 1994
Page 2 of 2

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance.

Item G or M	Page	Item	Comment(s)	Resolution	Resolution accepted INIT/DATE
M	na	na	Consideration should be given to explaining and justifying discrepancies between the DQO s and the information/conclusions Utilization of Validation of ERM Data for Usability in Final Reports 2-G28 ER ADM 08 02 will be instrumental in this comment and the previous comment.	Validation of ERM Data for Usability in Final Reports 2-G28 ER ADM-08 02 will be provide a methodology and format for evaluating PARCC parameter mentioned in the previous comment as well as explaining and justifying discrepancies (if any) between the DQOs in the RFI/RI Report	

REVIEW AND COMMENT RECORD

1 Response Date July 29, 1994

2 Document Title DRAFT FINAL Technical Memorandum No 15 Amended Field Sampling Plan Volume 2

Reviewing Agency EG&G ER/EQS

Review Date June 8 1994

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance.

Page 1 of 2

Item G or M	Page	Item	Comment(s)	Resolution	Resolution accepted INIT/DATE
G	21	20	The last sentence seems out of date TM 15 Volume 1 is proposing additional BH sampling too The sentence should be edited accordingly	The sentence has been revised as follows The field investigations at OU5 discussed in this TM commenced in June 1992 and with the exception of the ongoing groundwater monitoring and an additional geophysical survey (see Section 2.5.2.2) was completed in August 1993	
G	27	22	14 bullet list. Consider adding the EE and Air Operating Procedures references as appropriate	The procedures outlined in the Environmental Management Division Operating Procedures Manual Volume V Ecology (5 21000-OPS EE) and Volume VI Air Operating Procedures (5 21000-OPS AP) did not apply to the actual field investigations conducted during the OU5 Phase I RFI/RI Procedures in these volumes will be followed as applicable to any and all future field activities	
G	225	24221	34 typographical The extra closing parenthesis needs to be removed.	Closing parenthesis following RCAs) has been removed.	
M	na	na	Consideration needs to be given to evaluating the data against the PARCC parameters and comparison of real samples with blank/QC samples	Data will be further evaluated against the PARCC parameters for the RFI/RI report.	